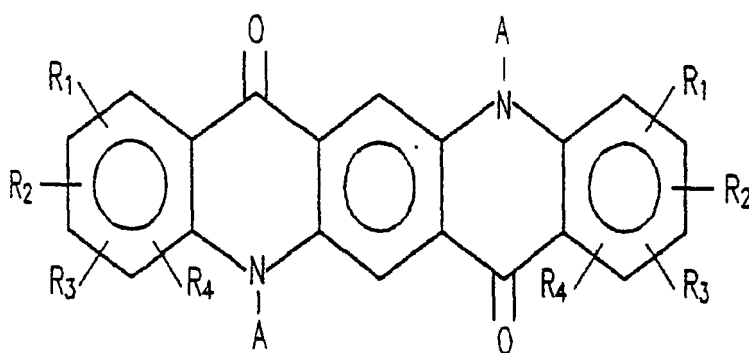


What is Claimed is:

1. An organic electroluminescent (EL) device comprising: at least one organic EL multilayer between a first electrode and a second electrode, and a layer I including at least one first material from the group consisting of compounds of chemical formula I:

5

CHEMICAL FORMULA I



where:

each of R₁ to R₄ is independently hydrogen, an alkyl or alkoxy group having from 1 to 5 carbon atoms, aryl, aryloxy or a halogen, or at least one among pairs of adjacent substituents of R₁ through R₄ form an five or six- numbered conjugated cyclic ring; and,

10

A each independently denotes hydrogen, an alkyl group having from 1 to 5 carbon atoms, or aryl.

2. The device as claimed in claim 1, wherein said five or six-numbered conjugated cyclic ring includes carbon, nitrogen, or sulfur.

3. The device as claimed in claim 1, wherein said each of R_1 to R_4 is independently hydrogen, an alkyl and alkoxy group having from 1 to 5 carbon atoms, phenoxy, phenyl, naphthyl, fluorine, chlorine, or bromine, and said A each independently denotes methyl, ethyl, phenyl, or hydrogen.

5 4. The device as claimed in claim 3, wherein said R_1 is an alkyl and alkoxy group having from 1 to 5 carbon atoms, phenoxy or phenyl, and said each of R_2 to R_4 and A is independently hydrogen.

5. The device as claimed in any one of claim 1 to 4, further comprising a layer II including at least one second material selected from the group consisting of an alkali metal, an alkaline earth
10 metal, and a compound thereof.

6. The device as claimed in claim 5, wherein said second electrode comprises aluminum.

7. The device as claimed in claim 5, wherein said layer II comprises Li_2O .

8. The device as claimed in claim 5, wherein said layer I has a thickness of from about
15 0.5nm to about 50nm, and said layer II has a thickness of from about 0.2nm to about 3nm.

9. The device as claimed in any one of claim 1 to claim 4, wherein said layer I is a mixed layer which further comprises at least one second material selected from the group consisting of an alkali metal, an alkaline earth metal, and a compound thereof by co-deposition.

10. The device as claimed in claim 9, wherein the ratio between said (1) at least one first material and said (2) at least one second material is either fixed or varied as a function of position, within said mixed layer.

11. The device as claimed in claim 9, wherein said mixed layer has a thickness of from
5 about 0.5nm to about 10nm.

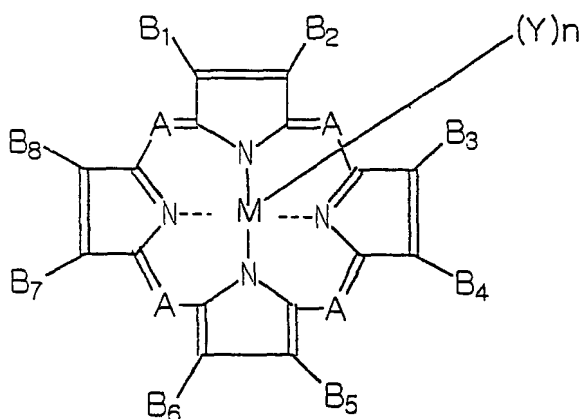
12. The device as claimed in claim 9, wherein said second electrode comprises aluminum.

13. The device as claimed in claim 9, said at least one second material comprises Li_2O .

14. An organic electroluminescent (EL) device comprising: at least one organic EL
multilayer between a first electrode and a second electrode, and a layer I including at least one first
10 material selected from porphyrinic compounds.

15. The device as claimed in claim 14, wherein said at least one first material has the following structure:

CHEMICAL FORMULA II



where:

A each independently denotes $-N=$ or $-C(R)=$, and R is hydrogen, alkyl, alkoxy, aralkyl, alkaryl, aryl, or a heterocyclic group;

M comprises an element selected from groups IA, IIA, IIIA and IVA, and the third, fourth, fifth and sixth periods of the periodic table;

Y is alkoxy, phenoxy, alkylamino, arylamino, an alkylphosphinic group, an arylphosphinic group, alkylsulfur or arylsulfur, or an element selected from groups VIA and VIIA of the periodic table;

n is an integer of 0, 1, or 2; and,

B₁ through B₈ each independently represents hydrogen, alkyl, aryl, alkoxy, aryloxyalkyl, hydroxy, hydroxyalkyl, aralkyl, alkylamino, arylamino, alkylthiol, arylthiol, nitroalkyl, alkylcarbonyl, alkoxy carbonyl, phenyl, amino, cyanyl, naphthyl, alkaryl, a halogen or a heterocyclic group, or at least one among pairs of adjacent substituents of B₁ through B₈ form an unsaturated or saturated five, six, or seven-numbered ring.

16. The device as claimed in claim 15, wherein said unsaturated or saturated five, six, or

seven- numbered ring includes carbon, nitrogen, sulfur or oxygen.

17. The device as claimed in claim 15, wherein said unsaturated or saturated five, six, or seven- numbered ring includes alkyl, aryl, alkoxy, aryloxyalkyl, hydroxy, hydroxyalkyl, aralkyl, alkylamino, arylamino, nitroalkyl, alkylcarbonyl, alkoxycarbonyl, phenyl, amino, cyanyl, naphthyl, alkaryl, a halogen, or a heterocyclic group.

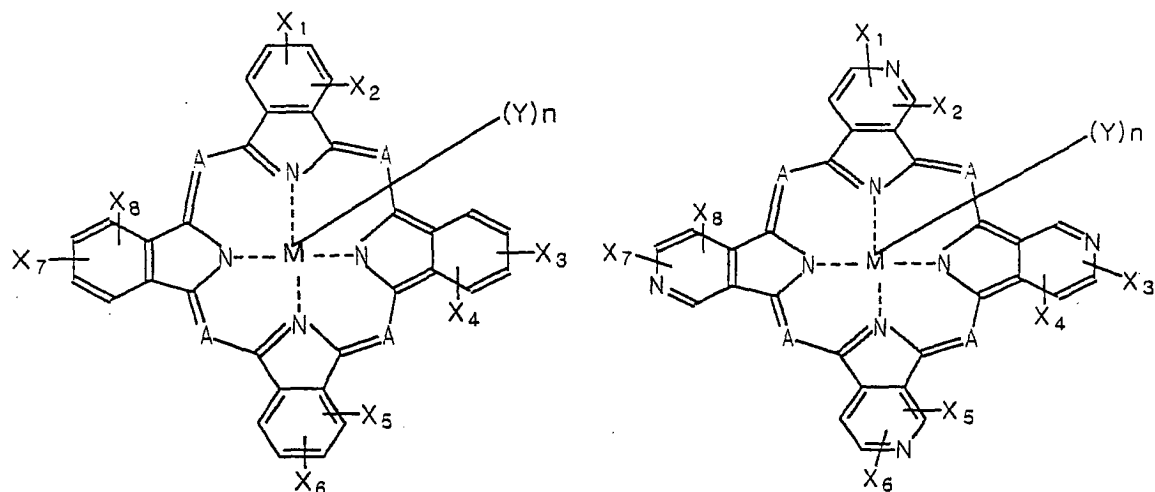
18. The device as claimed in claim 15, wherein said M of chemical formula II is one of 2Li, 2Na, Mg, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Pt, Cu, 2Ag, Zn, Pd, Al, Ga, In, Si, Sn, Pb, 2H, and TiO.

19. The device as claimed in claim 15, wherein said Y of chemical formula II is one of oxygen, fluorine, chlorine, bromine, an alkoxy group having from 1 to 10 carbon atoms, and phenoxy.

20. The device as claimed in claim 15, wherein said at least one first material comprises a compound selected from the group represented by chemical formulas III and IV as shown below:

CHEMICAL FORMULA III

CHEMICAL FORMULA IV



where:

A each independently denotes $-N=$ or $-C(R)=$; and R is hydrogen, alkyl, alkoxy, aralkyl, alkaryl, aryl, or a heterocyclic group;

M comprises an element selected from groups IA, IIA, IIIA and IVA, and the third, fourth, fifth and sixth periods of the periodic table;

Y is alkoxy, phenoxy, alkylamino, arylamino, an alkylphosphinic group, an arylphosphinic group, alkylsulfur or arylsulfur, or an element selected from groups VIA and VIIA of the periodic table;

n is an integer of 0, 1, or 2; and,

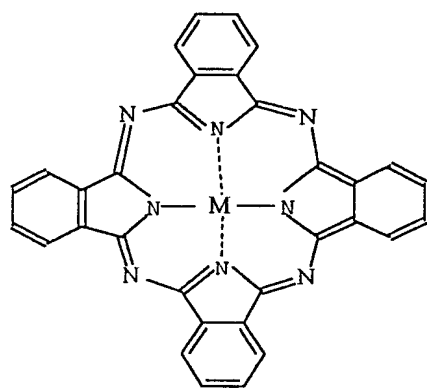
X_1 through X_8 each independently represent hydrogen, alkyl, aryl, alkoxy, aryloxyalkyl, hydroxy, hydroxyalkyl, aralkyl, alkylamino, arylamino, alkylthiol, arylthiol, nitroalkyl, alkylcarbonyl, alkoxycarbonyl, phenyl, amino, cyanyl, naphthyl, alkaryl, a halogen or a heterocyclic group, or at least one among pairs of adjacent substituents of X_1 through X_8 form an unsaturated or saturated five, six, or seven-numbered ring.

21. The device as claimed in claim 20, wherein said M of chemical formula III and IV is one of 2Li, 2Na, Mg, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Pt, Cu, 2Ag, Zn, Pd, Al, Ga, In, Si, Sn, Pb, 2H, and TiO.

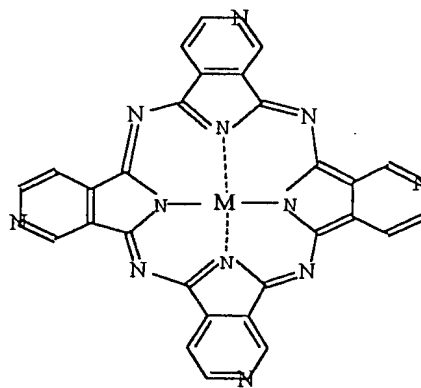
22. The device as claimed in claim 20, wherein said Y of chemical formula III and IV is one of oxygen, fluorine, chlorine, bromine, an alkoxy group having from 1 to 10 carbon atoms, and phenoxy.

23. The device as claimed in claim 20, wherein said at least one first material comprises a compound selected from the group represented by chemical formulas V and VI as shown below:

CHEMICAL FORMULA V



CHEMICAL FORMULA VI



10 where:

M is one of Co, AlCl, Cu, 2Li, Fe, Pb, Mg, SiCl₂, 2Na, Sn, Zn, Ni, Mn, VO, 2Ag, MnCl, SnCl₂, and TiO.

24. The device as claimed in any one of claims 14 to 23, further comprising a layer II including at least one second material selected from the group consisting of an alkali metal, an alkaline earth metal, and a compound thereof.

25. The device as claimed in claim 24, wherein said second electrode comprises aluminum.

5 26. The device as claimed in claim 24, wherein said layer II comprises Li_2O .

27. The device as claimed in claim 24, wherein said layer I has a thickness of from about 0.5nm to about 50nm and said layer II has a thickness of from about 0.2nm to about 3nm.

28. The device as claimed in any one of claims 14 to 23, wherein said layer I is a mixed layer which further comprises at least one second material selected from the group consisting of
10 an alkali metal, an alkaline earth metal, and a compound thereof by co-deposition.

29. The device as claimed in claim 28, wherein the ratio between said (1) at least one first material and said (2) at least one second material is either fixed or varied as a function of position, within said mixed layer.

30. The device as claimed in claim 28, wherein said mixed layer has a thickness of from
15 about 0.5nm to about 10nm.

31. The device as claimed in claim 28, wherein said second electrode comprises aluminum.

32. The device as claimed on claim 28, wherein said at least one second material comprises Li_2O .